Art.34 PCT Amendment filed September 29, 2005

CLAIMS

1. (Amended) An anti-methyllysine antibody having all of the following five properties:

(1) specific binding to dimethyllysine and monomethyllysine;

(2) no binding to lysine;

(3) stronger reactivity to dimethyllysine than reactivity to monomethyllysine;

(4) ability to specifically recognize a methyllysine residue in a protein, which is not influenced by surrounding amino acid residues; and

(5) reactivity to animal cell-derived histone and elongation factor 1α.

2. (Deleted)

3. (Deleted)

4. (Deleted)

5. The antibody according to claim 1, which is a polyclonal antibody.

6. The antibody according to claim 1, which is a monoclonal antibody.

7. (Amended) A hybridoma producing an anti-methyllysine antibody, which is selected from the group consisting of MEK3D7 (Accession No. FERM P-19595), MEK4E10 (Accession No. FERM P-19596), MEK5F7 (Accession No. FERM P-19597), MEK2-5A11 (Accession No. FERM P-10593) and MEK2-5B11 (Accession No. FERM P-19594).

8. An anti-methyllysine mouse monoclonal antibody produced by the hybridoma of claim 7.

9. A process for producing the polyclonal antibody of claim 5, which comprises immunizing an animal with an antigen obtained by chemically methylating a protein and subjecting the resulting antibody to affinity purification with methyllysine or a protein obtained by chemically methylating a protein different from the antigen.

10. A process for producing the monoclonal antibody of claim 6, which comprises immunizing an animal with an antigen obtained by chemically methylating a protein and then selecting a hybridoma secreting an antibody recognizing a protein obtained by chemically methylating a protein different from the antigen.

11. A method of detecting a methylated protein, which comprises using the antibody of any of claims 1 to 6 or 8.

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8. An anti-methyllysine mouse monoclonal antibody produced by the hybridoma of claim 7.

9. (Amended) A process for producing the polyclonal antibody of claim 5, which comprises immunizing an animal with an antigen obtained by chemically methylating a different protein and subjecting the resulting antibody to affinity purification with a protein obtained by chemically methylating a protein different from the antigen.

10. (Amended) A process for producing the monoclonal antibody of claim 6, which comprises immunizing an animal with an antigen obtained by chemically a different protein and selecting a hybridoma secreting an antibody recognizing a protein obtained by chemically methylating a protein different from the antigen.

11. A method of detecting a methylated protein, which comprises using the antibody of any of claims 1 to 6 or 8.